Department of the Interior
US Geological Survey

# Landsat 7 Calibration Parameter File Release

# Version Description Document

## Version 20.0

## April 2005

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## Executive Summary

The Version Description Document (VDD) is required by the Landsat Program Configuration Control Board for all software releases put into the operational environment. This VDD is the primary configuration control document used to track and control versions of Calibration Parameter files released to the operational environment. It is a summary of the features and contents of the CPF changes, and identifies and describes the version of the CPFs being delivered.

*Keywords: Version Description Document (VDD), Calibration Parameter File (CPF).*

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# Section 1 Preface

This Calibration Parameter File (CPF) Change Description Document is controlled by the Mission Management Office System Engineering (MMOSE) and the Landsat 7 Data Handling Facility (DHF) Change Control Board (L7 DCCB) and accompanies the release of CPFs for the 2nd Quarter of 2005.

Comments and questions regarding this document should be directed to:

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## Section 2 Overview

This document details the Calibration Parameter Files (CPFs) released for the quarter beginning 01 April 2005 and the changes made to them.

## Section 3 Reason for CPF Issuance and Changes

This release is a routine quarterly release for the 2nd quarter of 2005 and contains 4 updated CPFs.

To address a sudden change in responsivity of detector #12 in band 7, which occurred on October 6, 2004, the CPF for the 4th quarter 2004 has been split into two periods: October 1, 2004 to October 5, 2004 and October 6 2004 to December 31, 2004. The partial-quarter CPF effective October 6, 2004, along with the 1Q2005 and 2Q2005 CPFs, contain updates to the gain parameters of detector #12 in band 7.

Attitude parameters have been refined for all four CPFs to correct for minor changes in relationship of attitude control reference axis to ETM+ optical axis detected through sensor alignment calibration.

In addition, the standard changes to the CPF attributes and to the UT1 parameters have been made to all four CPFs.

## Section 4 List of CPFs in Effect

The following table shows the CPFs in effect for each time period since the Launch of Landsat 7, as well as the preceding CPFs.

| Period Covered | 1Q2005 CPF Name | 2Q2005 CPF Name |
|---|---|---|
| 1 April 2005 – 30 June 2005 | N/A | L7CPF20050401_20050630.01 (NEW) |
| 1 January 2005 – 31 March 2005 | L7CPF20050101_20050331.01 | L7CPF20050101_20050331.02 |
| 6 October 2004 – 31 December 2004 | L7CPF20041001_20041231.02 | L7CPF20041006_20041231.03 |
| 1 October 2004 – 5 October 2004 | L7CPF20041001_20041231.02 | L7CPF20041001_20041005.03 |
| 1 July 2004 – 30 September 2004 | L7CPF20040701_20040930.02 | L7CPF20040701_20040930.03 |
| 14 May 2004 – 30 June 2004 | L7CPF20040514_20040630.03 | L7CPF20040514_20040630.03 |
| 1 April 2004 – 13 May 2004 | L7CPF20040401_20040513.03 | L7CPF20040401_20040513.03 |
| 1 January 2004 – 31 March 2004 | L7CPF20040101_20040331.04 | L7CPF20040101_20040331.04 |
| 1 October 2003 – 31 December 2003 | L7CPF20031001_20031231.05 | L7CPF20031001_20031231.05 |
| 8 August 2003 – 30 September 2003 | L7CPF20030808_20030930.05 | L7CPF20030808_20030930.05 |
| 1 July 2003 – 7 August 2003 | L7CPF20030701_20030807.05 | L7CPF20030701_20030807.05 |
| 1 June 2003 – 30 June 2003 | L7CPF20030601_20030630.04 | L7CPF20030601_20030630.04 |
| 1 April 2003 – 31 May 2003 | L7CPF20030401_20030531.04 | L7CPF20030401_20030531.04 |
| 1 January 2003 – 31 March 2003 | L7CPF20030101_20030331.04 | L7CPF20030101_20030331.04 |
| 1 October 2002 – 31 December 2002 | L7CPF20021001_20021231.05 | L7CPF20021001_20021231.05 |
| 1 July 2002 – 30 September 2002 | L7CPF20020701_20020930.04 | L7CPF20020701_20020930.04 |
| 1 April 2002 – 30 June 2002 | L7CPF20020401_20020630.04 | L7CPF20020401_20020630.04 |
| 1 January 2002 – 31 March 2002 | L7CPF20020101_20020331.05 | L7CPF20020101_20020331.05 |
| 1 October 2001 – 31 December 2001 | L7CPF20011001_20011231.06 | L7CPF20011001_20011231.06 |

| | | |
|---|---|---|
| 1 July 2001 – 30 September 2001 | L7CPF20010701_20010930.06 | L7CPF20010701_20010930.06 |
| 1 April 2001 – 30 June 2001 | L7CPF20010401_20010630.07 | L7CPF20010401_20010630.07 |
| 1 January 2001 – 31 March 2001 | L7CPF20010101_20010331.08 | L7CPF20010101_20010331.08 |
| 1 October 2000 – 31 December 2000 | L7CPF20001001_20001231.09 | L7CPF20001001_20001231.09 |
| 19 July 2000 – 30 September 2000 | L7CPF20000719_20000930.11 | L7CPF20000719_20000930.11 |
| 1 July 2000 – 18 July 2000 | L7CPF20000701_20000718.10 | L7CPF20000701_20000718.10 |
| 1 April 2000 – 30 June 2000 | L7CPF20000401_20000630.10 | L7CPF20000401_20000630.10 |
| 1 January 2000 – 31 March 2000 | L7CPF20000101_20000331.12 | L7CPF20000101_20000331.12 |
| 9 December 1999 – 31 December 1999 | L7CPF19991209_19991231.13 | L7CPF19991209_19991231.13 |
| 24 November 1999 – 08 December 1999 | L7CPF19991124_19991208.13 | L7CPF19991124_19991208.13 |
| 1 October 1999 – 23 November 1999 | L7CPF19991001_19991123.13 | L7CPF19991001_19991123.13 |
| 1 July 1999 – 30 September 1999 | L7CPF19990701_19990930.16 | L7CPF19990701_19990930.16 |
| 1 April 1999 – 30 June 1999 | L7CPF19990401_19990630.19 | L7CPF19990401_19990630.19 |

# Section 5 List of Changed Units

## 5.1 New Groups or Fields to CPF File Structures

No new groups or fields were added in this release.

## 5.2 Deleted Groups or Fields in the CPF File Structures

No groups or fields were deleted in this release.

## 5.3 Modifications to Existing CPF Values

The following changes were made to those CPFs newly generated or modified this quarter:

5.3.1 File: L7CPF20050401_20050630.01

This is the new CPF for the 2nd Quarter of 2005. The contents are based on the CPF file from 1Q2005 (File: L7CPF20050101_20050331.01) with the following changes:

5.3.1.1 GROUP=FILE_ATTRIBUTES

Routine changes to show new filenames and effective dates.

5.3.1.2 GROUP=ATTITUDE_PARAMETERS

Attitude parameters have been revised to reflect the results of minor changes in relationship of attitude control reference axis to ETM+ optical axis. The affected parameter is Attitude_To_ETM_Matrix.

5.3.1.3 GROUP=DETECTOR_GAINS

Band 7 detector gains have been refined based upon analysis from the LPSO at NASA GSFC to reflect a change in responsivity of the detector #12. The affected parameters are B7L_Current and B7H_Current.

5.3.1.4 GROUP=UT1_TIME_PARAMETERS

UT1 parameters have been updated based on estimated values as computed at the Naval Observatory.

5.3.2 File: L7CPF20050101_20050331.02

Changes made to the .01 version of this CPF include the FILE_ATTRIBUTES, ATTITUDE_PARAMETERS, DETECTOR_GAINS and UT1_TIME_PARAMETERS groups, as previously described.

5.3.3 File: L7CPF20041006_20041231.03

This new partial-quarter CPF is derived from the CPF file from 2Q2004 (File: L7CPF20041001_20041231.02) and includes changes to the FILE_ATTRIBUTES, ATTITUDE_PARAMETERS, DETECTOR_GAINS and UT1_TIME_PARAMETERS groups, as previously described.

5.3.4 File: L7CPF20041001_20041005.03

This new partial-quarter CPF is derived from the CPF file from 2Q2004 (File: L7CPF20041001_20041231.02) and includes changes to the FILE_ATTRIBUTES, ATTITUDE_PARAMETERS, and UT1_TIME_PARAMETERS groups, as previously described.

# Section 6 Operational Changes to be Expected with New CPFs

No significant operational changes are expected with this release.

Attitude parameter updates should help maintain geometric/geodetic accuracy.

Due to changes to relative gains of detector #12 in band 7, striping that could be previously visually observed in homogenous regions in band 7 should be now removed.